

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)
Current Human Exposures Under Control

Facility Name: Tyco Electronics (formerly AMP, Inc.)
Facility Address: Susquehanna Trail, Glen Rock, PA 17327
Facility EPA ID #: PAD 04 142 1223

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

___X___ If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 2

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “contaminated”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	<u>x</u>	---	---	Volatile organic compounds detected in groundwater.
Air (indoors) ²	---	<u>x</u>	---	No Record of contamination. Large depth to groundwater and current levels of VOCs in groundwater do not pose an indoor air concern.
Surface Soil (e.g., <2 ft)	---	<u>x</u>	---	Contaminated soil excavated.
Surface Water	---	<u>x</u>	---	No Record of contamination.
Sediment	---	<u>x</u>	---	No Record of contamination.
Subsurf. Soil (e.g., >2 ft)	---	<u>x</u>	---	Contaminated soil excavated.
Air (outdoors)	---	<u>x</u>	---	No Record of contamination.

----- If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

--**X**-- If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

----- If unknown (for any media) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

General Information: In September 1999, AMP Inc. leased a portion of the property to M.A. Hanna, Inc. The new tenant will continue to manufacture polymers. The lease agreement between AMP Inc. and M.A. Hanna, Inc. will not interfere with the on-going remediation at the site. In early 2000, Tyco Electronics acquired the site and is now the responsible party for the on-going remediation. *[Tyco (formerly Amp Inc.) Quarterly Reports 1998-2002]*

Groundwater: In mid-1984, the facility initiated an investigation to sample and analyze groundwater monitoring wells. Results of the groundwater investigation from November 1984 through September 1988 indicated the presence of Volatile Organic Compounds (VOCs) in the groundwater beneath the site. The investigation also concluded that migration of the contaminated groundwater had occurred from the Manufacturing Building.

Since the initial investigation, the facility has undertaken remedial measures to remove groundwater and soil contamination at the site. The facility has excavated and removed contaminated soil. Since 1985, the facility has implemented a pump-and-treat system to remediate the groundwater. At present, the facility continues to monitor and remediate groundwater contaminants to achieve Maximum Concentration Levels (MCLs), concentration levels defined by EPA to protect human health for drinking water. As a result of the facility’s commitment to clean the site, the areas of groundwater contamination have reduced significantly. The former 24-acre groundwater plume has decreased to less than 0.75 acres. The groundwater plume is contained within the facility’s property line. *[Tyco (formerly Amp Inc.) Quarterly Reports 1998-2002]*

The following are the most recent groundwater data at the facility:

**Groundwater Analytical Data Results
Tyco - Glen Rock, PA
Fourth Quarter Year 2001**

Well ID	1,1,1-TCA	1,1,2-TCA	TCE	Total VOCs	VOC Running Avg.	Initial VOC Conc.	Long-Term Change (%)
MCL	200	5.0	5.0	---			---
AMP-2	1.6	12	4.8	22.7	20.9	1,461	-98.6
MW02	ND	ND	ND	ND	0.0	20	-100.0
MW-4L (POC)	ND	8.1	1.0	10.1	9.55	548	-98.3
MW-5	ND	ND	1.1	1.1	0.28	33.5	-99.2
MW-6	ND	ND	1.0	1.0	0.25	5.8	-95.7
MW_8	ND	4.6	1.4	6.0	5.13	116	-95.6
MW-10 (POC)	ND	1.5	ND	1.5	0.68	110	-99.4
MW-12	ND	16	ND	16	17.5	574	-97.0
MW-13	1.0	7.6	ND	10.1	9.05	83	-89.1
MW-14	1.3	4.7	3.8	12.5	14.3	91	-84.2
MW-15	4.6	20	5.1	35	28.7	105	-72.5
R-1	ND	5.1	1.2	6.3	4.13	510	-99.2
R-2	1.0	3.6	1.3	5.9	3.13	76.8	-95.9
R-3	1.6	11.0	2.0	15.7	12.8	595	-97.9
R-4	1.1	4.4	2.0	8.9	6.58	168	-96.1
R-5B (POC)	1.9	74	4.2	82.9	77.4	595	-87.0
R-6B	ND	18	2.2	68	72.8	696	-89.5
R-7	ND	11	1.4	12.4	9.7	631	-98.5
Larkin Field (POC)	1.5	1.8	1.4	5.7	3.43	56	-93.9

Notes:

Bold and shading indicates concentration greater than MCL.

MCL - EPA Safe Drinking Water Act Maximum Contaminant Level

ND - Not Detected above reporting limits

POC - Point of Compliance

- (1) Total VOCs do not include concentrations of confirmed/suspected laboratory contaminants.
- (2) Running average calculated from four most recent sample results.
- (3) Long-term change calculated using running average from onset of sampling (ranging from 1984 to 1989) to present.
- (4) Wells sampled semi-annually during 2nd and 4th quarters.

Surface and Subsurface Soil: As part of the remediation, the facility excavated the contaminated soil to meet Region 3 risk-based levels, which are protective of human health and the environment. *[Tyco (formerly Amp Inc.) Quarterly Reports 1998-2002]*

Surface Water, Sediment, and Outdoor Air: No record of contamination. The groundwater plume is contained onsite and does not deposit or discharge to any nearby sediment area and surface water bodies. During the years of operation, the facility installed emission control equipment to minimize air emissions and therefore, outdoor air does pose a concern. *[Tyco (formerly Amp Inc.) Quarterly Reports 1998-2002]*

Indoor Air: No record of contamination. Due to the large depth to groundwater (100-200 ft.) and the low levels of volatile organic compounds (VOCs) detected underneath the buildings, the potential of groundwater VOCs volatilization infusion to the above buildings does not pose a human health risk. *[Tyco (formerly Amp Inc.) Quarterly Reports 1998-2002]*

Footnotes:

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 3

3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

<u>“Contaminated” Media</u>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>		<u>No</u>	
Air (indoors)	---	---	---				
Soil (surface, e.g., <2 ft)	---	---	---	---	---	---	---
Surface Water	---	---			---	---	---
Sediment	---	---			---	---	---
Soil (subsurface e.g., >2 ft)				---			---
Air (outdoors)	---	---	---	---	---		

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not “contaminated”) as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“___”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

__X__ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any “Contaminated” Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code

Rationale and Reference(s): Since the initial investigation, the facility has undertaken remedial measures to remove groundwater contamination at the site. Since 1985, the facility has implemented a pump-and-treat system to remediate the groundwater.

Presently, the facility continues to monitor and remediate groundwater contaminants to achieve Maximum Concentration Levels (MCLs). As a result of the facility's commitment to clean the site, the areas of groundwater contamination have reduced significantly. The former 24-acre groundwater plume has reduced to less than 0.75 acres. The groundwater plume is contained within the facility's property line. [*Tyco (formerly Amp Inc.) Quarterly Reports 1998-2002*]

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 4

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

----- If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

----- If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

----- If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

Rationale and Reference(s): _____

⁴ If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 5

5. Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?

----- If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

----- If no (there are current exposures that can be reasonably expected to be “unacceptable”)- continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

----- If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

Rationale and Reference(s): _____

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 6

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

 X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Tyco Electronics (formerly AMP, Inc.)** facility, **EPA ID # PAD 04 142 1223**, located at **Susquehanna Trail, Glen Rock, PA 17327** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

 NO - "Current Human Exposures" are NOT "Under Control."

 IN - More information is needed to make a determination.

Completed by (signature) _____ Date 07/03/02
 (print) Khai M. Dao
 (title) Remedial Project Manager

Supervisor (signature) _____ Date 07/03/02
 (print) Paul Gotthold
 (title) PA Operations Branch Chief
 (EPA Region or State) EPA, Region 3

Locations where References may be found:

US EPA
Region III
Waste and Chemical Mgmt. Division
1650 Arch Street
Philadelphia, PA 19103

Contact telephone and e-mail numbers:

EPA Contact
Khai M. Dao
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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.